AFFIDAVIT OF
MICHAEL J. BOYLES

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on May 24, 1999.

Michael J. Boyles

Notary Public

My Commission Expires: January 31, 2001

AFFIDAVIT OF
JOHN C. KLICK

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on May 24, 1999.

John C. Klick

Notary Public

My Commission Expires: January 31, 2001

AFFIDAVIT OF
BRIAN F. PITKIN

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on May 24, 1999.

Brian F. Pitkin

Notary Public

My Commission Expires: January 31, 2001

ATTACHMENT 1

CURRICULUM VITAE

OF

MICHAEL J. BOYLES

EDUCATION

Princeton University, Princeton, New Jersey, 1983
Bachelor of Science and Engineering - Concentration in Engineering and Management Systems

EMPLOYMENT HISTORY

Keith-Stevens, Inc., Eden Prairie, Minnesota, 1983 - 1985
Senior Programmer

ALK Associates, Inc., Princeton, New Jersey, 1985 - 1996
Principal

Klick, Kent & Allen, Inc., Alexandria, Virginia, 1996 - Present
Senior Consultant

EXPERIENCE

Telecommunication Industry

Reviewed numerous telecommunication cost models and their inputs, as well as associated cost studies. These models were on a variety of platforms, were highly complex and incorporated sophisticated logic. Determined where model inputs deviated from TELRIC principles and corrected those inputs. Reran the models to produce restated cost studies. The topics covered by the cost models and studies included switching, signaling, transport, operator services, directory assistance, as well as a variety of other miscellaneous studies.

Provided analyses of cost models as support to other outside witnesses. Created interrogatory requests and provided deposition preparation and support for counsel.

Railroad Industry

Performed a variety of special studies in order to develop costs for rate contention litigation. These special studies included analyses of car cycle times, crew wages, road property investment, locomotive unit costs, switching operations and switching charges.

Jointly managed a multi-firm project to develop an integrated computer-based costing algorithm and railroad network model to estimate stand-alone costs for transportation by railroad.

C

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20544

In the Matter of	)	
Implementation of the Local Competition Provisions of the Telecommunications Act of 1996	)	**CC Docket No. 96-98**

AFFIDAVIT OF
R. GLENN HUBBARD,
WILLIAM H. LEHR,
AND **ROBERT D. WILLIG**
ON BEHALF OF AT&T CORP.

EXHIBIT C

Filed May 26, 1999

I. QUALIFICATIONS

A. R. Glenn Hubbard

1. My name is R. Glenn Hubbard. My business address is 3022 Broadway, 609 Uris Hall, New York, New York 10027.

2. I hold the Russell L. Carson Professorship in Economics and Finance at Columbia University. At the National Bureau of Economic Research, I am a research associate in programs on corporate finance, public economics, industrial organization, monetary economics, and economic fluctuations. I am also a visiting scholar at the American Enterprise Institute, where I direct the Program on Tax Policy Research, and an advisor to the president of the Federal Reserve Bank of New York. Prior to joining the Columbia faculty as professor of economics and finance in 1988, I taught in the economics department of Northwestern University. During the 1997-1998 academic year, I am a visiting professor at the Harvard Business School. I have also served as John M. Olin Visiting Professor at the University of Chicago, Visiting Professor and Research Fellow of the Energy and Environmental Policy Center at the John F. Kennedy School of Government, and John M. Olin Fellow at the National Bureau of Economic Research. My A.M. and Ph.D. degrees in economics are from Harvard University, and my B.A. and B.S. degrees are from the University of Central Florida, *summa cum laude.*

3. My professional work has centered on problems in public economics, industrial organization, natural resource economics, and monetary economics. I have authored more than eighty journal articles, edited a number of books, and authored a leading textbook in money and financial markets. I have served on the editorial boards of journals specializing in industrial

economics. I have been an advisor or consultant to the Board of Governors of the Federal Reserve System, Congressional Budget Office, Federal Reserve Bank of New York, Internal Revenue Service, International Trade Commission, U.S. Department of Energy, and U.S. Department of the Treasury. In 1991-1993, I served as Deputy Assistant Secretary (Tax Analysis) of the U.S. Treasury Department where I was responsible for economic analysis of tax policy, the administration's revenue estimates, and health care policy issues. I have prepared analysis for and testified in many telecommunications regulatory proceedings. My *curriculum vitae* is attached as Attachment 1 with more biographical details and a listing of my writings.

B. William H. Lehr.

4. My name is William H. Lehr. My business address is 94 Hubbard Street, Concord, MA 01742.

5. I am an associate research scholar of finance and economics in the Graduate School of Business of Columbia University and a research affiliate of the Internet Telecoms Convergence Consortium at the Massachusetts Institute of Technology. Prior to joining the Columbia faculty in 1991, I received my Ph.D. in economics from Stanford University. My M.B.A. (Wharton), M.S.E. (chemical engineering), B.S. (chemical engineering, *cum laude*), and B.A. (European history, *magna cum laude*) degrees are from the University of Pennsylvania. I have significant professional experience in the telecommunications industry through positions at consulting firms and at MCI.

6. My research focuses on issues in telecommunications and Internet economics and policy. I have authored a number of professional articles on standard setting, network economics, and telecommunications policy. My *curriculum vitae* is attached as Attachment 2.

C. Robert D. Willig

7. My name is Robert D. Willig. I am Professor of Economics and Public Affairs at the Woodrow Wilson School and the Economics Department of Princeton University, a position I have held since 1978. Before that, I was Supervisor in the Economics Research Department of Bell Laboratories. My teaching and research have specialized in the fields of industrial organization, government-business relations and welfare theory.

8. I served as Deputy Assistant Attorney General for Economics in the Antitrust Division of the United States Department of Justice from 1989 to 1991. I also served on the Defense Science Board task force on antitrust aspects of defense industry consolidation. In addition, I have been a member of policy task forces under the aegis of the Governor of New Jersey and the National Research Council.

9. I am the author of *Welfare Analysis of Policies Affecting Prices and Products*; *Contestable Markets and the Theory of Industry Structure* (with W. Baumol and J. Panzar); and numerous articles, including "Merger Analysis, IO Theory, and Merger Guidelines." I am also a co-editor of *The Handbook of Industrial Organization*, and have served on the editorial boards of the *American Economic Review* and the *Journal of Industrial Economics*. I am an elected Fellow of the Econometric Society.

10. I have been especially active in both theoretical and applied analysis of telecommunications issues. Since leaving Bell Laboratories, I have been a consultant to AT&T, Bell Atlantic, Telstra and New Zealand Telecom, and have testified before the U.S. Congress, the Federal Communications Commission, and the Public Utility Commissions of about a dozen states. I have been on governmental and privately supported missions involving

telecommunications throughout South America, Canada, Europe and Asia. I have written and testified on such subjects within telecommunications as the scope of competition, end-user service pricing and costing, unbundled access arrangements and pricing, the design of regulation and methodologies for assessing what activities should be subject to regulation, directory services, bypass arrangements, and network externalities and universal service. On other issues, I have worked as a consultant with the Federal Trade Commission, the Organization for Economic Cooperation and Development, the Inter-American Development Bank, the World Bank and various private clients. A full list of my articles and other professional publications and activities is presented in my *curriculum vitae*, which is attached as Attachment 3.

II. BACKGROUND AND PURPOSE OF TESTIMONY

11. In the *First Report and Order*, the Federal Communications Commission ("Commission" or "FCC") promulgated a number of procompetitive, economically sound rules designed to promote maximum feasible competition in the markets for exchange and exchange access telecommunications services.[1] When the 8th Circuit just a few months later stayed and vacated not only the FCC's national pricing rules but also the FCC's requirement that incumbent local exchange carriers ("LECs") provide combinations of network elements,[2] it critically undermined the viability of the provision of these services in local mass-markets by competitive

[1] *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, First Report and Order, 11 F.C.C. Rcd. 15499 (1996) ("*First Report and Order*").

[2] *Iowa Utils. Bd.* v. *FCC*, 120 F.3d 753 (1997).

local exchange carriers ("CLECs"). Indeed, no such competition has developed in the ensuing three years.

12. In *AT&T* v. *Iowa Utils. Bd.*, 119 S.Ct. 721 (1999), the Supreme Court overturned the 8th Circuit decision and affirmed the FCC's *First Report and Order* in all respects but one. The Court upheld the FCC's jurisdiction to promulgate national unbundling requirements and pricing rules, and the Court further upheld the FCC's requirement that incumbent LECs provide combinations of all or some of those network elements that the FCC has required incumbents to make available.

13. But the Supreme Court vacated the rule (47 C.F.R. § 51.319) that defined the minimum list of network elements incumbent LECs must provide.[3] The Court ordered reconsideration of these requirements on the ground that the FCC had not considered several factors that it was statutorily required to "consider": whether access to any "proprietary" elements was "necessary"; and, whether denial of access to the remaining nonproprietary elements would "impair" the ability of the requesting carrier to provide services. The FCC had made that latter determination by focusing solely on other alternatives within the incumbent LECs' network, and apparently had ignored the CLECs' possible ability to self-provision or obtain network elements from another source. The FCC had also reasoned that CLECs would be impaired in providing service if they would incur higher costs than they otherwise could, and treated that showing as having been conclusively established by the fact a CLEC had requested

[3] Section 51.319 required the incumbent LECs to offer, at a minimum, the following seven unbundled network elements or "UNEs": (i) Local loops, (ii) Local and Tandem Switching, (iii) Interoffice Transport, (iv) Network Interface Device, (v) Signaling and Call-related Databases, (vi) Operation Support Systems (OSS), and (vii) Directory and Operator services.

the element from the incumbent – on the ground that CLECs would not choose to seek facilities or functions from the LECs unless they represent the lowest cost source of supply.

14. The Supreme Court held that under this approach incumbent LECs were obliged to provide any requested element that they could feasibly provide and that the FCC had violated its statutory duty to determine on a "rational basis" whether denial of access would have impaired the ability of some CLECs to offer service, or undermined some other objective of the Telecommunications Act of 1996. The Court stated that while a finding of "added costs" would establish that some CLECs would be impaired in maximizing profits from services, that fact could not establish impairment in their ability to offer service if CLECs could and would offer services equally well without the element, and merely earn lower profits.

15. We have been asked by AT&T to provide an economic analysis of the standard that the Commission should now adopt to govern determinations of which network elements should be made available by incumbents under the 1996 Act. We understand – both from the text of the Act and from the unchallenged findings in the *First Report and Order* – that this Act seeks to maximize competitive entry and promote maximum feasible competition by imposing sharing obligations on incumbents that will, by any measure, go far beyond those imposed by antitrust standards and other prohibitions of acts of monopolization.

16. The question, therefore, is what regulatory standards will best advance the objectives of assuring that consumers of exchange and exchange access services receive the maximum benefits of competition in both the short term and the long term. We conclude that the standard that will best advance these interests is a competitive benchmark. The Commission should conclude that an incumbent LEC's failure to provide access to a network element would

impair a CLEC's ability to offer competing local exchange services and otherwise undermine the Act's objectives if the requesting CLEC would then experience greater delays in offering service, reduce the scope of its services, or offer lower quality service, including limitations on capabilities. That is because in a competitive local telecommunications market these effects would reduce the viability or scope of a CLEC's service offerings. A reduction in scope could manifest itself (i) geographically, if the CLEC provides service in fewer areas; (ii) as a reduction in the breadth of customers served, if the CLEC decides to offer services to fewer customer groups; or (iii) as a decrease in the range of products, if the CLEC offers a smaller set of local and exchange access services. A reduction in viability arises if the CLEC is unable to supply its services at minimum potential cost. Put another way, impairment could manifest itself as a CLEC's failure to enter geographic, customer, or product markets as broadly as it would have done absent the impairment. In addition, impairment could be revealed as a delay in CLEC entry to a particular geographic, customer, or product market.

17. We further conclude that access to LEC – network elements will produce short-run benefits for consumers by accelerating competition and more rapidly reducing prices. Unbundling also generates long-run benefits by acting as a bridge to facilities-based competition.[4] CLECs relying on UNEs face significant cost disadvantages that can be mitigated if they replace UNEs with their own facilities, but the UNEs still play a crucial rule during the

[4] As explained *infra*, regulatory-required unbundling of the incumbent LEC's network will facilitate entry of other facilities-based competitors. Once these competing networks are in place, but not before, competitive wholesale markets for the UNEs should provide access to network facilities to support retail competition from non-facilities-based resellers. When these competitive wholesale UNE markets are fully established, the prices for UNEs should approach per-unit TELRIC rates.

early stages of entry when CLECs lack scale and scope economies as well as the customer demand information they need to build efficient networks. Finally, we demonstrate that the Telecommunications Act's twin goals of promoting local competition and driving prices to competitive levels are best served if the Commission adopts national unbundling requirements.

III. CLECS WILL NOT BE FULLY EFFECTIVE COMPETITORS IN LOCAL TELECOMMUNICATIONS MARKETS IF THEIR COSTS OF PROVIDING SERVICE ARE GREATER THAN THE COSTS OF THE INCUMBENT LEC.

18. Fundamental economic principles dictate that price competition will drive a relatively high-cost firm out of a market. If a firm has higher costs than its rivals, the natural competitive process inevitably will propel prices below the costs of the high-cost firm, forcing it to exit the market. Moreover, a rational CLEC will anticipate this outcome of the competitive process and, if it knows it would have higher costs than the incumbent LEC in a particular market, it simply will choose not to commit its liquid capital to enter that market in the first place.[5] In other words, a CLEC will enter a particular market only if it anticipates that its costs will not exceed those of the incumbent LEC for a similarly desirable product.

19. Such rational entry behavior in the presence of monopolized markets has important implications for the Commission's determinations of what network elements incumbent LECs should be required to unbundle. If an incumbent LEC fails to unbundle a network element, a CLEC must either self-provision that network element or purchase it from a third party. If these strategies have the effect of increasing the CLEC's costs above the

[5] Indeed, we suspect that the absence of broad-scale local entry throughout most of the United States reflects the fact that CLECs anticipate precisely such a response from incumbent LECs.

incumbent LEC's, then the CLEC will not enter that market – *i.e.*, the CLEC will be impaired. An incumbent LEC's failure to unbundle a network element will inflate a CLEC's costs above the incumbent LEC's costs for that element if alternative sources for the element, including self provision, do not allow the CLEC to achieve the same scale and scope economies as the incumbent LEC, if they force the CLEC to incur assemblage costs, or if the market prices for those alternatives are higher than their corresponding TELRIC per unit of service.

20. *Scale and Scope Economies.* Because incumbent LEC local networks are ubiquitous and network costs are largely fixed or sunk, incumbent LECs enjoy high economies of scale and scope that allow them to offer service at the lowest potential cost.[6] The size of the market served by the incumbent means that the incumbent can enjoy significantly lower average costs per subscriber served than an entrant who must incur many of the same fixed costs but who likely will serve a much smaller market, at least initially.[7] Further, these scale and scope economies are associated both with network operations and retail services. Obviously, then, a

[6] This is what has come to be called total element long run incremental cost or "TELRIC." TELRIC estimates are forward-looking and include a competitive return on invested capital, so they represent the true economic costs that a carrier faces, rather than irrelevant historical book costs. TELRIC estimates are long run because they are meant to reflect the decision horizon over which entry decisions are made, and therefore include many costs that might be considered irrelevant over a shorter decision time frame.

[7] Even if the entrant and the incumbent installed the same network, the average cost per subscriber would be lower for the incumbent because of its larger market share. However, because the incumbent operates a much larger network, it is able to take advantage of lower cost high-capacity equipment and equipment supplier price discounts.

CLEC will have higher costs than the incumbent LEC unless it can achieve similar scale and scope economies.[8]

21. A CLEC may be unable to achieve the incumbent LEC's scale economies even if (because of its activities in other telecommunications markets) it could purchase the same equipment at the same prices as the incumbent LEC.[9] Even if the TELRIC (total rather than per-unit costs) a CLEC incurs when it self-provisions a network element were no higher than the incumbent LEC's TELRIC of providing that network element, which is unlikely to be the case, the CLEC's lack of an equivalent local traffic base will cause its per-unit TELRIC costs of self-providing the element to be much higher than the incumbent LEC's. Further, if it were the case that per-unit TELRIC for a network element was the same under self-provisioning and purchasing the element from the incumbent LEC, the CLEC still could be at a disadvantage due to assemblage costs.

22. *Assemblage costs.* Assemblage costs are costs borne by the CLEC when it mixes its own facilities with unbundled network elements. Obviously, these costs also can asymmetrically inflate CLEC costs above those incurred by the incumbent LEC. For example, when the CLEC leases unbundled loops, but deploys its own switch, the CLEC incurs significant costs to bring the customer's loop from the incumbent LEC's wire center to the CLEC's switch.

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[8] In fact, because the entrant will often find it necessary to offer a price discount even if the entrant offers equivalent or better quality service than the incumbent, the incumbent's cost advantage is even larger than scale and scope economies not yet realized by the entrant.

[9] For example, because AT&T is a major long distance carrier, it may be able to command supplier discounts similar to those enjoyed by the major LECs.

The incumbent LEC never incurs that cost, however, because its loops terminate at its local switch.[10]

23. *Higher alternative network element rates.* If the CLEC is forced to purchase the network element from another source at a price that exceeds the incumbent LEC's cost (per unit) of self-providing that network element (*i.e.*, TELRIC per unit), then the CLEC has higher costs than the LEC.[11]

24. While it may be the case that incumbent LECs today receive monopoly profits on their network services (including local service, exchange access, and universal service subsidies), such supracompetitive revenues still would not entice a CLEC to commit its capital to enter a particular market unless the CLEC can achieve cost levels comparable to those of the incumbent LEC. To reach a contrary conclusion would ignore the likely incumbent LEC response to broad-scale entry that we have described.

25. It is our understanding that in the Supreme Court's decision, Justice Scalia described a situation where an increase in CLEC costs would impair profits, but not a CLEC's

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[10] It is our understanding that this interoffice transportation cost may increase the per loop cost a CLEC incurs by $117 or more. *See Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, Comments of AT&T Corp., Exhibit E, Affidavit of C. Michael Pfau (filed May 26, 1999) ¶ 26.

[11] Multiple alternative sources of a network element at similar quality, in sufficient quantity to satisfy CLEC demands, and at rates at or below competitive levels, must be present before the Commission could reasonably conclude that third-party sources of a network element are an adequate substitute for incumbent LEC unbundling. One alternative source is likely not enough because that source would be free to increase its prices in response to the incumbent LEC's decision not to unbundle the element. In other words, a single alternative source could become a monopoly provider of that network element to CLECs. Multiple sources, then, are required to impose competitive pricing discipline.

ability to offer service. While circumstances in some markets certainly can arise where cost increases do not affect the scope of services that a firm will offer or the prices that will emerge in equilibrium, CLECs do not encounter such conditions when entering local telecommunications markets. CLECs will encounter high risks and, at best, marginal opportunities to earn profits. Any increase in their costs will exacerbate those risks and cut discouragingly into already narrow expected profit margins. Even where the pre-entry circumstances of the LEC seem to offer lucrative profit opportunities for a CLEC, the natural price-cutting response by the LEC to the entry of a CLEC would seek to retain the LEC's customers, and the ensuing dynamic process would likely drive prices below the costs of the competitor with the higher level of costs. Thus, here, the increase in CLEC costs would not reduce the potential for the CLEC to earn supranormal profits (e.g., from 100% to 99%), but would instead threaten its ability to earn even a normal return on its investment, and thereby discourage entry in the first instance.

26. Hence, where the incumbent LEC fails to unbundle a network element, and, as a result, CLECs experience higher costs through lower scale and scope economies, assemblage costs, or higher alternative network element rates, CLECs will be unable to offer fully competitive service, and unable to provide fully effective competitive discipline on the incumbent LECs. Such impairment may manifest itself in several "types" of failure to enter, not just the extreme case where a CLEC decides not to offer *any* local services. They all involve a reduction in the scope of a CLEC's service offerings. A reduction in scope could manifest itself (i) geographically, if the CLEC provides service in fewer areas; (ii) as a reduction in the breadth

of customers served, if the CLEC decides to offer services to fewer customer groups;[12] or (iii) as a decrease in the range of products, if the CLEC offers a smaller set of local and exchange access services.[13] Put another way, impairment could manifest itself as a CLEC's failure to enter geographic, consumer, or product markets as broadly as it would have done absent the impairment. In addition, impairment could reveal itself as a delay in entry to a particular geographic, customer, or product market.[14]

IV. UNBUNDLING NETWORK ELEMENTS ENSURES SHORT-TERM AND LONG-TERM BENEFITS TO CONSUMERS AND COMPETITION.

27. Unbundling of incumbent LEC network elements produces both short-term and long-term benefits to consumers and competition. In the short run, unbundled network elements can accelerate competitive pressures on incumbent LEC rates by significantly reducing barriers to entry and exit. CLECs could then offer service with minimal delay and with less need for massive up-front investment costs. UNEs, moreover, will be critical to protecting competition in the long distance market and broader emerging market for "all distance" one-stop shopping services if Bell Operating Companies ("BOCs") are authorized to enter these markets before

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[12] Higher network element costs could force CLECs to forego service to more expensive rural customers.

[13] It is our understanding, for example, that the unavailability of xDSL loops would preclude the ability of competitive LECs to offer high-speed data services to many customers. Consequently, an incumbent LEC's failure to unbundle xDSL loops could restrict a competitive LEC to offering basic local services and no broadband services.

[14] Compared to what would otherwise have been required to justify serving customers using network elements obtained from an incumbent, the unavailability of unbundled local switching could force a CLEC to delay offering local services to low-volume residential customers for several months or years until an even larger customer base was developed.

there are widespread reasonable alternatives to the BOC local network in that state. While users of UNEs are inherently at a disadvantage relative to the BOC in competing with the BOC's local exchange and exchange access services, UNEs represent the only method by which long distance carriers and others can ubiquitously offer their own one-stop shopping alternatives while incurring costs for the local components that are even remotely close to those that BOCs incur.[15] In the long run, unbundled network elements should encourage, and certainly will not discourage, facilities-based competition. In theory, the availability of UNEs at TELRIC means that CLECs incur costs similar to those of the incumbent LEC in providing local services. This is because, by its definition, TELRIC is supposed to match the incumbent LEC's "economic costs" of providing the network elements necessary to provide local services. In practice, however, CLECs purchasing UNEs will likely face inherent cost disadvantages relative to the incumbent LEC, and they will face higher risks. Entrants can mitigate this cost disadvantage only after they have developed a significant customer base and learned about customer demand and traffic flows by then replacing UNEs purchased from the incumbent LEC with their own facilities.[16]

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[15] Absent wholesale competition in the provision of network elements, resale competition will not provide an effective means of local market entry because the discounts currently available under the Act are not, we understand, sufficient to enable CLECs to recover their costs. Once the presence of alternative facilities-based providers has driven wholesale rates for network elements down to per unit TELRIC prices, however, resale activities would likely provide additional benefits to consumers.

[16] These entry barriers make it all the more important that the Commission not embrace rules that would further increase entrant costs.

28. *Retail costs.* Availability of UNEs permits entrants to share in many incumbent LEC scale and scope economies, but not *all* of them. As an initial matter, CLECs will need to spend much more per customer on marketing efforts to win customers away from incumbent LECs. Incumbent LECs have established brand names, reputations for local service quality, and longstanding customer relationships, whereas CLECs must build brand names for themselves in local markets.[17]

29. *Setup costs.* Another cost asymmetry between incumbent LECs and CLECs arises from setup costs. A CLEC will incur a number of one-time entry costs that the incumbent LEC incurred in the deep past, have already been covered by monopoly ratepayers, and that no longer are reflected in the regulated prices charged to today's ratepayers. These setup costs include the creation of back-office systems for billing, network provisioning and control, and customer service. A corporate management hierarchy for both network and retail operations must be established as well. And, of course, a CLEC must create a brand image that applies to local services, and invest heavily in marketing in order to dislodge customers from the incumbent.[18]

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[17] Even in the case where a CLEC has a longstanding relationship with the customer (*e.g.*, because the CLEC has been the customer's long distance provider), this relationship needs to be extended to local services. Moreover, many commercial customers may be under long-term contracts with termination penalties that further increase the costs of a CLEC competing for their business.

[18] Indeed, a CLEC, as a new entrant, will not only incur higher marketing costs to acquire customers from the incumbent, it most likely will need to charge less than the incumbent in order to gain a foothold in the local market.

30. As long as the incumbent LEC retains its substantial market power, CLECs will face higher costs than the incumbent LEC because of the need to defend themselves from discriminatory or other types of anticompetitive behavior by the incumbent. CLECs will need to rely on monitoring, dispute resolution, and perhaps on courts and regulatory agencies to ensure that incumbent LECs behave in a nondiscriminatory, pro-competitive manner.[19] These mechanisms, however, are costly and imperfect. *Ex post* remedies in the form of regulatory rulings or penalties will not eliminate these costs. Moreover, the ability of the incumbent LECs to engage in anticompetitive activities is increased if they are not required to provide UNEs.

31. *Risk.* Possibly most important of all, CLECs face higher risks than the incumbent LECs. This is true for several reasons. Entering as a new competitor into a monopolized market is inherently riskier than being the monopoly provider in that market. Investors will be unsure about whether or not a CLEC can overcome the incumbent LEC's brand name recognition and longstanding customer relationships, and as a result, will require expected returns from CLEC entry investments to exceed an incumbent's hurdle rate. The competition brought into the market by the CLEC will likely push prices down, in ways never before experienced in those markets. And even with UNEs available, the entering CLEC will nevertheless need to expend significant sunk costs that will immediately be put at risk.

32. An entrant also lacks the incumbent's knowledge about local operating conditions. This includes differences in local operating costs (*e.g.*, location and quality of outside plant facilities) and consumer demand (*e.g.*, peak traffic volumes over certain facilities

[19] It is our understanding that the complexity of local telecommunications networks may make CLEC monitoring of incumbent LEC behavior very expensive.

and demand growth). This information asymmetry increases the risk that the CLEC will fail to deploy facilities optimally and therefore increases the overall risk of entering the local telecommunications business.

33. Further, a CLEC relying on UNEs faces unusually high strategic risks because, when it orders UNEs, it effectively discloses to its dominant rival competitively sensitive information. The incumbent LEC can determine where the competitor intends to offer services (*e.g.*, from requests for collocation space) and how successful different service offerings have been for the CLEC (*e.g.*, based on local switching usage). Literally on a daily basis, a UNE purchaser divulges strategic information about its competitive initiatives and successes to its most formidable opponent, information that might be used by the incumbent LEC to shape effective competitive responses.

34. CLECs can mitigate many of these cost and strategic disadvantages by replacing UNEs with their own facilities once they have developed a significant customer base and learned about customer demand and traffic flows. In this respect, UNEs act as a bridge to facilities-based competition.[20] UNEs allow CLECs to accelerate their local service offerings. CLECs can begin providing service before they have achieved the necessary scale and scope economies to justify deploying their own facilities. Further, we understand that these carriers can begin

[20] UNEs also perform a critical "gap-filling" role even after alternative networks are fully constructed in a locale. Some markets may not support additional facilities-based competitors and no CLEC has the capital or other assets needed to deploy facilities in all markets at once. In those markets where a CLEC cannot justify deploying alternative facilities for at least a substantial period of time, UNEs will be critical to protecting local and long distance competition because, in those instances, UNEs represent the only method by which long distance carriers and other entrants can offer their own one-stop shopping alternatives ubiquitously while incurring costs for the local components that are even remotely similar to the incumbent LEC's costs.

collecting customer demand and traffic flow information and that they can thereby avoid assuming the unnecessary risk of deploying facilities at suboptimal wire center locations, along the wrong interoffice routes, or deploying inefficient levels of capacity.

35. In addition, UNEs will play a useful procompetitive role even *after* there is a broadly available alternative to LEC networks, because by providing an avenue for further entry they will increase market contestability, thereby contributing to additional competitive pressures on pricing. Moreover, UNE sales will encourage wholesale competition to provide network elements because, among other things, the owners of alternatives will want to obtain the business of UNE purchasers instead of having all of that business go to the incumbent.[21] Hence, the availability of UNEs would promote the lowest possible consumer prices, even as competition takes hold in local markets.

36. There is little countervailing risk that a policy requiring incumbent LECs to unbundle UNEs and offer them at cost-based prices will produce harmful effects. In the short-run, competition is accelerated and more consumers receive the benefits of lower prices more rapidly. In the long run, CLECs will still have ample incentives to mitigate UNE competitive disadvantages by deploying their own facilities as soon as practicable. In both the short and long run, as long as the UNEs are priced at per-unit TELRIC, the incumbent LEC is assured of earning a competitive return on its invested capital. Consequently, there is no reason to restrict UNE availability or utility or to elevate pricing above the competitive standard. Artificially

[21] In addition, facilities-based competition sufficient to generate wholesale network element rates approximating per-unit TELRIC levels may emerge. Those wholesale markets may support robust reseller competition that will complement and intensify the competition among the facilities-based providers.